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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,539	11/07/2001	Yanling Zhou	ONDAT-017US	4104

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EXAMINER

PAIK, SANG YEOP

ART UNIT PAPER NUMBER

3742

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/049,539

Applicant(s)

ZHOU, YANLING

Examiner

Sang Y Paik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/8/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 5, 6, 7 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Ikegami et al (US 4,160,227).

Ikegami et al anticipates the structure claimed including a ceramic substrate such as alumina substrate with a conductive layer having ruthenium oxide, glass frits such as boronsilicate and alumina, bismuth, and noble metals such as gold and silver provided on a lower surface of the ceramic substrate. It is noted to the applicant that claims 6 and 7 are the product by process claims whereby the patentability is based on the product itself and not by the process. However, Ikegami et al also shows that the ceramic substrate with the paste is fired or baked.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 5-7, and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffmann (US 4,888,467) in view of Ezaki (US 4,991,284) or Watanabe et al (US 5,064,573).

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Hoffmann shows the structure claimed having a ceramic substrate with a conductive layer having ruthenium oxide, glass, bismuth and noble metals such as gold and platinum printed on the lower surface of the ceramic plate (also see column 7, lines 40-52). However, Hoffmann does not show that glass is a glass frit.

Ezaki shows a conductive layer having ruthenium oxide, glass frit and noble metals such as silver or palladium. Watanabe et al also shows a conductive layer having ruthenium oxide and glass frit further having alumina. In view of Ezaki or Watanabe et al, it would have been obvious to one of ordinary skill in the art to adapt Hoffmann with glass frit in place of glass as an alternative form of glass to form a conductive layer.

It is noted that that claims 6 and 7 are the product by process claims whereby the patentability is based on the product itself and not by the process. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

With respect to claims 12 and 13, while Hoffmann does not explicitly disclose the claimed ceramic thickness and the operating temperature, it would have been obvious to one of ordinary skill in the art to provide the ceramic substrate within the claimed thickness since such thickness would have been dependent upon the desired mechanical and physical strength of the ceramic substrate, i.e., thicker the substrate stronger mechanical and physical strength, and the claimed temperature would have been dependent upon the user to produce a temperature to increase the rate at which the desired object can be heated, i.e., higher the temperature, faster the object can be heated and achieve the desired heating temperature.

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5. Claims 3, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffmann in view of Ezaki or Watanabe et al as applied to claims 1, 2, 5-7, and 12-14 above, and further in view of Murakami et al (US 5,996,067).

Hoffmann in view of Ezaki or Watanabe et al shows the structure claimed except having the ceramic substrate made of nitride or carbide ceramic.

Murakami et al shows a ceramic substrate made of alumina or other nitride or carbide ceramic having a conductive paste having ruthenium oxide, glass and noble metals. In view of Murakami et al, it would have been obvious to one of ordinary skill in the art to adapt Hoffmann, as modified by Ezaki or Watanabe et al, with the claimed ceramic substrate as an alternative material that also provides a good resistance reliability and stability.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffmann in view of Ezaki or Watanabe et al as applied to claims 1, 2, 5-7, and 12-14 above, and further in view of La Bar (US 4,088,502).

Hoffmann in view of Ezaki or Watanabe et al shows the structure claimed except having the glass frit made of zinc boron silicate.

La Bar shows the glass frit made of zinc boron silicate which can withstand corrosion resistance. In view of La Bar, it would have been obvious to one of ordinary skill in the art to adapt Hoffmann, as modified by Ezaki or Watanabe et al, with the glass frit made of zinc boron silicate that can also provide high corrosion resistance and thermal resistance.

7. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffmann in view of Ezaki or Watanabe et al and Murakami et al as applied to claims 3, 8 and 10 above, and further in view of La Bar (US 4,088,502).

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Hoffmann in view of Ezaki or Watanabe et al and Murakami et al shows the structure claimed except having the glass frit made of zinc boron silicate.

La Bar shows the glass frit made of zinc boron silicate which can withstand corrosion resistance.

In view of La Bar, it would have been obvious to one of ordinary skill in the art to adapt

Hoffmann, as modified by Ezaki or Watanabe et al and Murakami et al, with the glass frit made of zinc boron silicate that can also provide high corrosion resistance and thermal resistance.

Response to Arguments

8. Applicant's arguments filed 3/18/04 have been fully considered but they are not persuasive. The applicant argues that Ikegami et al does not show the structure claimed where the conductive paste is printed on the lower surface of the ceramic substrate. Ikegami et al clearly shows a conductive paste printed on a surface of the ceramic substrate whereby the ceramic substrate can be oriented in direction where the conductive paste is provided on the lower surface of the ceramic substrate. Hoffmann also clearly teaches that the conductive paste is provided on the underside of the ceramic carrier substrate. The applicant further argues that the prior art does not teaching the method of baking by which the claimed product is made. As is applied in the grounds of rejection, the claims as presented are the product-by-process claims that its patentability is based on the product itself and not the process (see MPEP 2113).

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y Paik whose telephone number is 703-308-1147. The examiner can normally be reached on M-F (9:00-4:00) First Friday Off.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Y. Paik

Sang Y Paik
Primary Examiner
Art Unit 3742

syp